

Abstract

The invention relates to the field of gaseous-discharge high-vacuum apparatuses. The engineering effect attainable thereby consists in improving the efficiency of extracting the electron beam as well as the gas and power efficiency. The disclosed plasma electron source comprises inner and outer pole pieces made as bodies of revolution having central holes, with a magnetomotive force source arranged between them, and comprises also, placed in a sealed housing, an arc diaphragmed hollow cathode with a gas feed device as well as, installed between and in line with the coaxial outlets of the cathode and housing, intermediate and main anodes made as bodies of revolution having central holes. The intermediate anode, the inner pole piece, an annular header, the main anode and the outer pole piece are installed successively between the outlets of the cathode and housing. The main anode is made of a magneto-weak material and positioned so that at least 30% of the magnetic flux created in the space between the pole pieces flows through its hole. The inner and outer pole pieces are electrically connected with the cathode.